

### III. REMARKS

A terminal disclaimer is being filed with respect to U.S. Patent Application No. 11/457,879. Thus the provisional double patenting rejection of claims 1-14 and 16-17 as being unpatentable over claims 1-15 of said application in view of Alamouti should be withdrawn.

Claim 1, 6-8 and 11-13 are not unpatentable under 35 U.S.C. 102(e) as being anticipated by Alamouti.

Claim 1 recites **constructing a frame of a certain number of consecutive symbols**. In column 3, lines 30-32, Alamouti speaks about "blocks", but a block as designated cannot equal the concept of frame in the claimed invention. The decisive feature about Alamouti's blocks is the number of antennas because the number of symbols in a block must be equal to the number of antennas. In his example, Alamouti consider  $n=2$  so each block has two symbols. However, when it comes to actual transmission, Alamouti multiplies and processes the original symbols so that each group of two symbols actually results in four symbols. For example, the block of symbols  $s_0$  and  $s_1$  becomes a group of four distinctive symbols  $s_0$ ,  $s_0^*$ ,  $s_1$ ,  $-s_1^*$ . So, even if one (mis)interprets the sequence  $(s_0, s_1)$  as a frame, one must note that in the actual transmission these symbols will never occur as consecutive symbols but as simultaneously transmitted symbols from two different antennas. On the other hand if one takes any pair of truly consecutive symbols from the transmission, like  $s_0$  and  $-s_1^*$ , for example, one notes that these only constitute a part of the whole symbol sequence  $s_0, s_0^*, s_1, -s_1^*$  to be transmitted. Thus Alamouti fails to disclose anything that would correspond to the claimed feature recited in bold typeface above.

Claims 1, 12 and 13 recite that **the transmission of each symbol of the sequence of symbols with a certain transmission pattern that indicates through which transmission antenna each transmitted symbol is transmitted**. This is not disclosed in Alamouti, or if Alamouti does disclose it, it causes a further

contradiction with the definition of frame discussed above. The example in column 4, lines 14-23, in Alamouti discloses a transmission pattern, but also names the sequence of signals as  $\{s_0, s_1, s_2, s_3, s_4, s_5 \dots\}$ . What Alamouti seems to disclose in said example is a transmission pattern that defines the first and second symbol to be transmitted simultaneously through parallel antennas, then the third and fourth symbol to be transmitted simultaneously through parallel antennas and so on, but **not in consecutive symbol periods**. Between each such transmission instant there comes another symbol period during which a pair of derivative signals (such as  $s_0^*$ ,  $-s_1^*$ ) is transmitted that do not even belong to the sequence of signals. One would be tempted to make an interpretation according to which each symbol of the sequence  $\{s_0, s_1, s_2, s_3, s_4, s_5 \dots\}$  is transmitted and the transmission pattern tells through which transmission antenna: symbols  $\{s_0, s_2, s_4 \dots\}$  through the first antenna and symbols  $\{s_1, s_3, s_5 \dots\}$  through the second antenna. But then again in neither of these subgroups can one find consecutive symbols of the original symbol sequence. So there is no disclosure of the claimed "frame of a certain number of consecutive symbols"?

Claim 1 recites **starting the transmission of the sequence of symbols from a predefined antenna**. As pointed out above, Alamouti names  $\{s_0, s_1, s_2, s_3, s_4, s_5, \dots\}$  as his sequence of signals, which one could possibly equate with the claimed concept "sequence of symbols". But the transmission of Alamouti's sequence begins by simultaneously transmitting the first pair of the sequence! It is impossible to say that the transmission would have started from a predefined antenna because the transmission simultaneously started from two antennas.

Note that claims 12 and 13 recite the similar language of "an indicator for indicating the antenna from which to transmit the first symbol belonging to the sequences...".

Claims 1, 12 and 13 recite **enabling a receiver to associate a correct transmission antenna specific channel coefficient with each transmitted symbol by starting the transmission pattern from the beginning in the**

**beginning of each frame.** This is the most important argument against Alamouti since it sums up all the contradictions between frames and transmission patterns referred to above. In his Table 1, Alamouti gives a transmission pattern that is six symbol periods long. He does not specifically disclose starting that transmission pattern from the beginning at all except the natural interpretation that the transmission pattern starts at the simultaneous transmission of symbols  $s_0$  and  $s_1$  at the leftmost column of the table. Above applicants had already shown how the concept of a frame does not even exist in Alamouti, or is at least very much open to different interpretations. It is simply impossible to see any starting from the beginning in Table 1, at least in the claimed sense which requires starting the transmission pattern from the beginning at the beginning of each frame. Additionally, Alamouti fails to disclose the first part of this claimed feature, i.e., enabling a receiver to associate a correct transmission antenna specific channel coefficient with each transmitted symbol. This is because Alamouti does it the other way round. He uses the transmitted (and received) symbols to calculate the channel coefficients (see equations 17 in Alamouti). Thus Alamouti could at most be said to derive antenna specific channel coefficients from transmitted symbols.

For all of the above reasons, the rejection of claims 1, 6-8 and 11-13 as anticipated by Alamouti should be withdrawn.

Claims 9 and 17 are not unpatentable under 35 U.S.C. 103 (a) over Alamouti.

Claim 9 depends from claim 1, which, as explained above, is allowable.

Further, the present invention is for the problem of determining the correct channel coefficient, while Alamouti is for the different problem of transmission errors. Thus, all of the above-discussed features are not obvious in view of Alamouti, i.e., it is not obvious to modify Alamouti to have the claimed features, see MPEP 2143.01. Hence the rejection of claim 9 should be withdrawn for this additional reason.

Claim 17 also recites all of the above-discussed features. Thus the rejection of claim 17 should be withdrawn for the reasons given above.

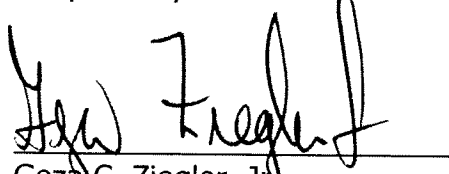
Claims 10, 14 and 16 are not unpatentable under 35 U.S.C. 103(a) over Alamouti in view of admitted prior art.

Since the admitted prior art also fails to disclose the above-discussed and claimed features, combining it with Alamouti does not result in the claimed invention. Thus the rejection of claims 10, 14 and 16 should be withdrawn.

For all the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicant's attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted



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7 Jan 2008

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